

Climate Change Politics & Policy

M-F 11 – 12:35 PM ~ GUGG 206

http://sciencepolicy.colorado.edu/students/envs-geog_3022

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COURSE DESCRIPTION

We tap into climate politics and policy as we work to understand, explore and critically analyze how climate changing activities are governed. The class sessions consist of four main components:

- (1) a general introduction: mitigation and adaptation, loss and damage
- (2) climate politics and policy at the national and international levels
- (3) climate politics and policy at the sub-national level: regional, state and city-level governance
- (4) where climate politics and policy meet the public: non-nation state actors and everyday spaces

2018 is a big year for climate politics and policy. We will anchor our discussions and analyses to the unfolding events around us, from international United Nations-facilitated negotiations to the Boulder city-scale activities. The objective of this course is to explore, understand and critically analyze influences and trends in climate politics and science-policy, stimulating your curiosity and critical engagement along the way. We will gain insights from a variety of perspectives and viewpoints while we improve our understanding of the many dynamic and contested factors, pressures and processes that are involved in contemporary climate politics undergirding explicit policy proposals.

Structured through both **lectures and seminar-style discussions**, class sessions work through the historically-sensitive and culturally-situated climate governance at multiple scales.

Sessions critically interrogate movements and dynamics in climate politics and science-policy decision-making. As examples, course participants consider assessments, critiques and proposals:

- to improve governance architectures shaping climate decision-making (from the mild corrective to radical restructuring),
- to reduce emissions while attending to climate adaptation, vulnerability and resilience
- to (equitably/justly) divide up a remaining 500 billion tons of Carbon that can still be emitted
- to decarbonize industry and society at multiple levels

Overall, students who critically engage with the course themes, concepts and case studies can expect to complete the semester better equipped to understand, analyze and engage in the high-stakes 21st century arena of climate politics and policy.

COURSE READING MATERIALS

We center our discussions on the following required texts, and then also draw on additional peer-reviewed journal articles and gray literature:

- (1) Hulme, Mike (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press: Cambridge, UK.
- (2) Leggett, Jeremy (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA.
- (3) Hoffman, Andrew J. (2015) *How Culture Shapes the Climate Change Debate* Stanford University Press, 110pp.

Books are available at the campus bookstore. Other readings are available through the course webpage.

COURSE REQUIREMENTS

Overview

attendance & participation (occasional quizzes)	15 pts
news items (1 point each 2x/week [3 in week 2])* ⁺	11 pts
roundtable (comment sheet, co-facilitation, summary)	11 pts
reading questions (1 point each 2x/week [except 1 in first week &/or 1 when co-facilitating])* ⁺	8 pts
collaborative activity* ⁺	20 pts
midterm exam	15 pts
final exam	20 pts

total: 100 points

** for anything late, 25% will be deducted per calendar day (starting from the session they're due)*

⁺ all worked delivered in hard copy must be double-side printed

Unfortunately, we will not be able to discuss all dimensions and facets of the themes and readings. So it will be up to you to engage both critically and mindfully with these outside of our meetings as well. I encourage you to self-organize into discussion and/or study groups to get the most out of the materials, themes, and issues that are raised in the class meetings.

Attendance & Class Participation (occasional quizzes) (15 points)

This is an upper division course crammed into a summer session term so the schedule is inevitably demanding. It is important that everyone stay up to date with the readings, assignments and other expectations. **All readings must be completed *before* the class for which they are assigned.**

Everyone is expected to attend all sessions and to engage critically with the readings and issues that are discussed. Our discussions inevitably will build upon previous sessions. Come to each class session ready to contribute with comments you have assembled based on the readings and the topics/issues they raise. Your participation is valued, and enhances class sessions. I must note here that ***if you accumulate more than 4 unexcused absences during the summer session, you will not be able to pass the course.***

News Items (11 points)

On Mondays and Wednesdays for weeks #2, #3, #4 and #5 (Wednesday/Friday for week #1), bring to class a news item related to the course content. We'll begin each session with a short discussion of the items, tethering conceptual frameworks and engagements to unfolding issues in the public arena.

In addition, tweet these news items by each class time with the hashtag #climate2018. If you do not yet have a twitter account, you will sign up for a free one on **Tuesday, July 10.**

Roundtables: Comment Sheets, Discussion Co-Facilitation, Summary (11 points)

During one of the nine Tuesdays/Thursdays sessions during summer term, groups of 2-3 will work together to co-facilitate a roundtable discussion of that day's materials and themes. The sign-up sheet will circulate on Wednesday, July 11.

This co-facilitation will have three main elements: 1) preparation of a **Comment Sheet** *before* the session, 2) **Co-facilitation** *during* the session and 3) a **Summary** *after* the session

Comment Sheets (4 points)

Co-facilitators will draw up notes to distribute to the class, providing a short summary along with a set of potential discussion points, comments and questions. **These are limited to two pages.** Co-facilitators will send these *over email by 8AM the day of the session* (3 hours before we meet). Post them to the class by sending it as an attachment (in Word or PDF) via email to climate2018@lists.colorado.edu

These comments will direct us all to what co-facilitators determine to be important and key themes as well as critiques and questions from the material to discuss during the session. ***If you are in a group of two or more, these must be prepared together as a group.***

Co-facilitation (4 points)

Co-facilitators will prepare/coordinate how they plan to guide discussions. They will be provided also with a question each from the other class participants (see 'reading questions' below) to have at the ready if needed during the discussion.

Summaries (2 points)

Based on the co-facilitated roundtable discussion, by the next session co-facilitators will each submit a **summary** (up to two pages) on the content as well as the process of preparation for and activities in the roundtable discussion (in hard copy). Summaries must include:

- Substantive treatment of what discussions and questions transpired in the session.
- Discussion of how the roundtable session may have or may have not furthered critical understanding of the themes for that class period.
- Reflections on your facilitation role in the session: What worked in co-facilitating the discussion? What did not? What would you do differently the next time?

Confidential Peer Assessment (1 point)

Each co-facilitator will turn in (in hard copy) a confidential peer assessment based on their experiences. Copies of these are provided on the course website under the 'additional materials tab'.

Reading Questions (8 points)

For the Tues/Thurs course sessions (except just Thursday in week 1), everyone (with the exception of the co-facilitators for that session) will provide a brief question based on the readings for that day. Bring to class **enough copies** with your name on each one to hand out to the 2-3 co-facilitators and to me.

Approach each reading with a critical eye, and draw on your critical faculties to ask analytical questions over providing mere summarizing/descriptive questions about the content.

Collaborative activity (20 points)

Katowice (Poland) COP24 negotiations – a road map to distribute funds for loss and damage

In this activity, we look forward to the 24th Conference of Parties (COP24) meeting of the United Nations Framework Convention on Climate Change (UNFCCC) that will take place in Katowice, Poland. Among the many issues on the table in Katowice COP24 will be plans to develop and agree on a 'road map' to distribute funds by, through and to member-nations for loss and damage due to climate change. In this exercise, we will work to negotiate and agree on what this 'road map' will be.

Each of you will represent a key country in the negotiations, situated in a voting bloc. An objective of this activity is to successfully agree to commitments that most closely align with your nation's interests, as situated in your specified voting blocs. The countries represented will provide an instructive yet constrained view of larger (and messier) negotiations involving up to 193 nations. You will play the role of that country's high-level climate envoy and negotiator as you work strategically to achieve the 'best deal' for your country and its constituents. By studying and arguing for your adopted country's perspective and stances in climate negotiations, you will find success in the international negotiations. For the purposes of the role play, I am Executive Secretary of the United Nations Framework Convention on Climate Change, Patricia Espinosa. In this role, I will move between in-class caucuses to mediate negotiations and offer short and neutral comments as solicited by you as climate envoys.

THE PATH TO THE 'KATOWICE LOSS & DAMAGE ROADMAP'

- (1) In class on **July 11**, each of you will draw the name of a participating country out of the hat; you will briefly caucus with your voting blocs to begin to map out common interests that may be present within the groupings.
- (2) Between **July 12** and **July 16** you will study up on the positions that your country has taken relative to loss and damage commitments in the UN Conference of Parties negotiations – this will involve looking into how your country representatives have moved through previous negotiations, and what are priorities that they have articulated for the successor climate treaty
- (3) To hand in (as hard copies) on **July 16**, you will develop a 1-2 page fact sheet/position paper to share with your voting bloc (and me); the fact sheet will include these four main items: (A) What your country position has been on **loss and damage commitments**; (B) What your country position has been on **mitigation commitments** coming out of the Paris negotiations in 2015 (COP21); (C) What have been the **actual GHG emissions** from your country over the past decades; and (D) What are particular issues in climate change that your country has **prioritized** (e.g. sea level rise, drought, poverty, the economy) in past negotiations (**6 points**)
- (4) On **July 18**, you and your voting bloc will then take turns briefly sharing the main points and positions that you've identified from each of your countries, also noting intersections between countries in your voting bloc (**1 point**)
- (5) Between **July 18** and **July 27**, you will communicate with other members of your voting bloc (before/after class, by email, on the Norlin quad etc) to start preparing a group strategy for upcoming negotiations; you will appoint a lead negotiator to present a 6-minute argumentation on your position on loss and damage, all members of the voting blocs must help these lead negotiators prepare strategies
- (6) In class on **July 27**, your lead negotiator will present the 6-minute argumentation on your voting bloc's position on loss and damage, also working to convince the other voting blocs of their position while identifying common interests between groups (**6 points**)
- (7) Between **July 27** and **August 3**, voting blocs will be able to negotiate with each other (before class/after class, by email, on the Norlin quad etc) in order to improve possibilities for one's 'best deal' in the final negotiations
- (8) In class on **August 3**, final negotiations on loss and damage will take place; another lead negotiator (different from the appointed lead negotiator for July 27) will each make a statement directed to all voting blocs in the main forum (at that time these negotiators may ask brief

questions of other voting blocs); all members of the voting blocs must help these discussants prepare optimally effective strategies; final negotiations will then take place and proposals will be brought to a final agreement by the end of that class session (6 points)

(9) individually complete confidential peer assessments and turn them in on **August 6 (1 point)**

A few additional comments from the Executive Secretary:

- while these voting blocs may represent similar loss and damage interests, it is a mistake to expect that everyone in your voting bloc is your ally; ultimately you have been charged with the remit of getting the ‘best deal’ for your own country: so trust can be fleeting, ephemeral
- frame your arguments in the strongest terms politically and diplomatically palatable/appropriate
- ordering of arguments will be announced by me on the day of each set of negotiation sessions
- parties to the negotiations may not walk away from negotiations or from an agreement; all envoys recognize that an agreement must be reached in some form by the conclusion of negotiations

COUNTRY VOTING BLOCS

European Union

France
Germany
United Kingdom
(Spain)

African Group

Egypt
Kenya
(Ghana)

Oceania

New Zealand
Australia

+ Five

India
Brazil
People’s Republic of China
Mexico
(South Africa)

Asia

Bangladesh
Indonesia

Group of Seven (minus EU members)

United States of America
Canada
Japan

Eastern Europe

Russia
Poland

AOSIS (*Alliance of Small Island States*)

Fiji
(Tuvalu)
Marshall Islands

OPEC (*Organization of Petroleum Exporting Countries*)

Saudi Arabia
Iran
(Algeria)
Nigeria

ALBA (*Alianza Bolivariana para los Pueblos de Nuestra América*)

Venezuela
Nicaragua

Midterm and Final Examinations (15 points; 20 points)

The examinations will both be closed-book and no-note exams. Dates and times for the examinations are final so see me immediately if you anticipate any kind of conflict or problem. The final exam will be cumulative in the sense that it builds from concepts and foundations discussed in the first portion of the course. The content for these examinations will come from the lectures as well as the required readings.

Midterm – Wednesday July 25, during class time

Final Exam – Friday, August 10, during class time

University Recommended Syllabus Statements: Additional Logistics

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and <http://www.Colorado.EDU/disabilityservices> If you have a temporary medical condition or injury, see guidelines at <http://www.colorado.edu/disabilityservices/go.cgi?select=temporary.html> Disability Services' letters for students with disabilities indicate legally mandated reasonable accommodations. The syllabus statements and answers to FAQs can be found at <http://www.colorado.edu/disabilityservices>

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See full details at http://www.colorado.edu/policies/fac_relig.html

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See policies at <http://www.colorado.edu/policies/classbehavior.html> and at http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of sexual harassment or discrimination or harassment based upon race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550. Information about the ODH, the above referenced policies and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at <http://www.colorado.edu/odh>

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at <http://www.colorado.edu/policies/honor.html> and at <http://www.colorado.edu/academics/honorcode/>

CLASS LECTURE AND READING SCHEDULE

subject to change in response to class needs that arise as we progress through the summer session

Week 1

Tuesday, July 10 (class 11am-noon)

- introductions & review schedule, goals, objectives, logistics, expectations, plans for the course
- sign up for Twitter account (if you don't already have one)
- twitter discussion (share twitter handles) follow 10 climate politics & policy people/orgs
- discussion of things to look for when reading articles/chapters

Wednesday, July 11 (class 11am-noon)

- news tweets #1
- country assignments
- co-facilitation signups

Hulme, M. (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press: Cambridge, UK. **Preface, Chapter 1 & 2 (pp. xxv–71)**

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 1, 2 & 3**

Thursday, July 12

- co-facilitation #1

Hulme, M. (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press: Cambridge, UK. **Chapters 3 (pp. 72-108)**

Ehrhardt-Martinez, K., Rudel, T.K, Norgaard, K.M, and Broadbent, J. (2015) 'Mitigating climate change' in *Climate Change and Society* (Dunlap, R. and Brulle, R. [eds]) Oxford University Press: Oxford, UK, **pp. 199-234**

Friday, July 13

- news tweets #2

Mayrhofer, J. P., & Gupta, J. (2016). The science and politics of co-benefits in climate policy. *Environmental Science & Policy*, 57, 22-30.

Victor, D.G. & Jones, B.D. (2018) *Undiplomatic Action* Brookings Institute, paper 1, February.

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 4, 5 & 6**

Week 2

Monday, July 16

- news tweets #3
- hand in country fact sheets (copies for each of your voting bloc + me)

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 7, 8 & 9**

Seto, K., Davis, S.J., Mitchell, R.B., Stokes, E.C., Unruh, G. and Urge-Vorsatz, D. (2016) 'Carbon Lock-In: Types, Causes and Policy Implications' *Annual Review of Environment and Resources* 41: 425-452

Tuesday, July 17

- co-facilitation #2

Hulme, M. (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press. **Chapter 5 (pp. 142-177) & Chapter 4 (pp. 109-141)**

Ciplet, D., & Roberts, J. T. (2017) 'Climate change and the transition to neoliberal environmental governance' *Global Environmental Change*, 46, 148-156.

Wednesday, July 18

- news tweets #4
- brief voting bloc discussions

Betsill, M., Dubash, N. K., Paterson, M., van Asselt, H., Vihma, A., & Winkler, H. (2015). Building Productive Links between the UNFCCC and the Broader Global Climate Governance Landscape. *Global Environmental Politics*. 15(2), 1-10.

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 10, 11 & 12**

Thursday, July 19

- co-facilitation #3

Hulme, M. (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press. **Chapter 6 (pp. 178-210) & Chapter 7 (pp. 211-247)**

Keohane, R.O., and Victor, D.G. (2016) 'Cooperation and discord in global climate policy' *Nature Climate Change* 6, 570-575.

Roberts, J. T., Natson, S., Hoffmeister, V., Durand, A., Weikmans, R., Gewirtzman, J., & Huq, S. (2017). How will we pay for loss and damage? *Ethics, Policy & Environment*, 20(2), 208-226.

Friday, July 20

- news tweets #5

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 13, 14 & 15**

Week 3

Monday, July 23

- news tweets #6

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 16, 17 & 18**

Karlsson-Vinkhuyzen, S. I., Groff, M., Tamás, P. A., Dahl, A. L., Harder, M., & Hassall, G. (2018). Entry into force and then? The Paris agreement and state accountability. *Climate Policy*, 18(5), 593-599.

Tuesday, July 24

- co-facilitation #4

Hulme, M. (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press. **Chapter 8 (pp. 248-283) & Chapter 9 (pp. 284-321)**

Winkler, H., Mantlana, B., & Letete, T. (2017). Transparency of action and support in the Paris Agreement. *Climate Policy*, 17(7), 853-872.

Wednesday, July 25

- news tweets #7

MIDTERM EXAM

Thursday, July 26

- co-facilitation #5

Carmin, J., Tierney, K., Chu, E., Hunter, L.M., Roberts, J.T., and Shi, L. (2015) 'Adaptation to climate change' in *Climate Change and Society* (Dunlap, R. and Brulle, R. [eds]) Oxford University Press: Oxford, UK, **pp. 164-198**

Moser, S. and Boykoff, M. (eds.) (2013) 'Successful adaptation to climate change: Linking science and policy in a rapidly changing world' *Routledge*, London. **Chapter 1 (pp. 1-33)**

Khan, M.R. and Roberts, J.T. (2013) Towards a Binding Adaptation Regime: Three Levers and Two Instruments, in *Successful Adaptation to Climate Change* Moser, S.C. and Boykoff, M. [eds], **Chapter 8 (pp. 132-148)**

Friday, July 27

- opening negotiations (lead negotiators present voting bloc positions)

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 19, 20 & 21**

Week 4

Monday, July 30

- news tweets #8

Hoffman, A.J. (2015) *How Culture Shapes the Climate Change Debate* Stanford University Press, **Preface & Chapter 1 (pp. vii-14)**

Ayling, J., and Gunningham, N. (2015). Non-state governance and climate policy: the fossil fuel divestment movement. *Climate Policy*, 1-15.

Rabe, B. G., & Mills, S. B. (2017). State energy policy in the Trump Era: insights from public opinion. *Journal of Environmental Studies and Sciences*, 7(4), 535-539.

Tuesday, July 31

- co-facilitation #6

Hoffman, A.J. (2015) *How Culture Shapes the Climate Change Debate* Stanford University Press, **Chapter 2 (pp. 15-33) and Chapter 3 (pp. 34-47)**

Farrell, J. (2016). Network structure and influence of the climate change counter-movement. *Nature Climate Change*, 6(4), 370-374.

Brulle, R. J. (2014). Institutionalizing delay: foundation funding and the creation of U.S. climate change counter-movement organizations. *Climatic Change*, 122:681-694.

Wednesday, August 1

- news tweets #9

Hoffman, A.J. (2015) *How Culture Shapes the Climate Change Debate* Stanford Univ Press, **Chapter 4**

Fisher, D. (2013) Understanding the Relationship between Subnational and National Climate Change Politics in the United States: Toward a Theory of Boomerang Federalism, *Environment and Planning C: Government and Policy* 31(5) 769-784

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 22, 23 & 24**

Thursday, August 2

- co-facilitation #7

Hoffman, A.J. (2015) *How Culture Shapes the Climate Change Debate* Stanford University Press, **Chapter 5 (pp. 70-80) and Chapter 6 (pp. 81-90)**

Luers, A. (2013). Rethinking US climate advocacy. *Climatic Change*, 120(1-2), 13-19.

Gilmore, E. A., & St. Clair, T. (2017). Budgeting for climate change: obstacles and opportunities at the US state level. *Climate Policy*, 1-13.

Friday, August 3

- final negotiations (negotiator statements, questions and exchanges) and final decision

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 25, 26 & 27**

Week 5

Monday, August 6

- news tweets #10
- peer assessment due (from COP24 activity)

Boykoff, M. and Goodman, M.K. (2009) 'Conspicuous redemption: promises and perils of celebrity involvement in climate change', *Geoforum*, 40, 395-406

Colorado Climate Action Plan (2015)

<http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=196541&searchid=243b8969-739b-448c-bd2d-699af9b7aea0&dbid=0>

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 28, 29 & 30**

Tuesday, August 7

- co-facilitation #8

Betsill, M, and Stevis, D (2016) The politics and dynamics of energy transitions: lessons from Colorado's 'New Energy Economy' *Environment and Planning C: Government and Policy* 34 (2) 381-396

Kroepsch, A. (2016). New rig on the block: spatial policy discourse and the new suburban geography of energy production on Colorado's Front Range. *Environmental Communication*, 1-15.

Wednesday, August 8

- news tweets #11

Boulder Climate Commitment (2017) <https://tinyurl.com/khts7h9>

Leggett, J. (2015) *The Winning of the Carbon War: Power and politics on the front lines of climate and clean energy* Creative Commons: Mountain View, CA. **Chapters 31, 32, 33 & 34**

Thursday, August 9

- co-facilitation #9

Victor, D. G., Abdulla, A., Auston, D., Brase, W., Brouwer, J., Brown, K., Davis, S.J., Kappel, C.V., Meier, A., Modera, M. & Zarin Pass, R. Phillips, D., Sager, J., Weil, D., & TomKat Natural Gas Exit Strategies Working Group (2018) 'Turning Paris into reality at the University of California' *Nature Climate Change*, 183-185.

Jamieson, D (2013) Some Whats, Whys & Worries of Geoengineering *Climatic Change*, 121(3), 527-537

Hulme, M. (2009) *Why we disagree about climate change: understanding controversy, inaction and opportunity*, Cambridge University Press: Cambridge, UK. **Chapter 10 (pp. 322-365)**

Friday, August 10

FINAL EXAM